



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

DATE: 03/04/2015

SUBJECT: Myclobutanil. Human Health Scoping Document in Support of Registration Review.

PC Code: 128857	DP Barcode: D421960
Decision No.: 493832	Registration Nos.: See Attachment 6
Petition No.: NA	Regulatory Action: Registration Review
Case No.: NA	Risk Assessment Type: Single Chemical
TXR No.: NA	CAS No.: 88671-89-0
MRID No.: NA	40 CFR: §180.443

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Executive Summary

In order to determine the scope of work necessary to support the Registration Review of myclobutanil, the Health Effects Division (HED) has considered most recent human health risk assessment, the current myclobutanil toxicity and exposure databases, as well as updates to Agency's science policy and risk assessment methodologies that might impact the myclobutanil risk assessment. The most recent quantitative human health risk assessment was performed in 2007, and was for the use of myclobutanil on artichoke, caneberry, currant, field corn, gooseberry, lettuce, mint, snap bean, papaya, peppers, soybeans, and sugarcane (D341689, W. Cutchin, 11/01/2007). The most recent occupational and residential assessment was performed in 2013 for a proposed new use on grass grown for seed, sod farms, and included an updated residential reassessment on the existing myclobutanil residential uses (D408781, B. Bobowiec, 01/08/2013).

The current toxicology database for myclobutanil is sufficient for assessing risk. However, during registration review, HED will likely need to reevaluate the toxicological endpoints, points of departure (PoDs), and uncertainty/safety factors (UF/SFs) used for risk assessment, based on current policy.

The residue chemistry database is considered adequate to support the registered uses of myclobutanil. The Environmental Fate and Effects Division (EFED) has determined that an updated drinking water risk assessment will be required for myclobutanil. An updated dietary (food and drinking water) risk assessment may need to be conducted during registration review if the toxicological PoDs or UF/SFs change, and/or the updated drinking water assessment results in estimated drinking water concentrations which vary significantly from the values used in the current assessment.

The occupational exposure database is adequate to support the Registration Review process for myclobutanil. There is the potential for occupational and residential exposure from the registered uses of myclobutanil. The myclobutanil data set includes one turf transferable residue (TTR) study and two grape dislodgeable foliar residue (DFR) studies. An updated occupational and residential handler, as well as post application assessment, may be required if PoDs/UFs change significantly. A quantitative spray drift assessment has not been conducted and will be necessary to support the registration review.

There is sufficient information available to assess myclobutanil aggregate exposure. An updated aggregate risk assessment, will be required if PoDs/UFs change.

Introduction

Myclobutanil, a mixture of optical isomers (enantiomer), (RS)-2-(4-chlorophenyl)-2-(1H-1, 2, 4-triazol-1-ylmethyl) hexanenitrile, is a fungicide used on a variety of agricultural crops, as well as on ornamentals, in home orchards, in gardens, and on turf for the control of powdery mildew and rust. Myclobutanil products are formulated as a liquid concentrate, dry flowable (DF), granular (G), and water soluble packets (WSPs). In addition to these formulations, myclobutanil is also packaged in ready-to-use (RTU) bottles and aerosols. The chemical can be applied by aerial, ground, chemigation, and a variety of handheld equipment. Myclobutanil can also be used as a

cotton seed treatment for both commercial and on-farm scenarios. See the attached myclobutanil preliminary use profile Table A6.1 in the attachment for additional information on application rates and use pattern.

Myclobutanil is a member of the class of compounds known as conazole fungicides. An aggregate human health risk assessment for free triazole (T) and the conjugated triazole metabolites triazole alanine (TA), and triazole acetic acid (TAA) was performed (D414952, T. Morton et al., 10/24/2013). Free triazole T, TA, and TAA residues resulting from the uses of myclobutanil were included in this assessment. The findings indicate that acute and chronic aggregate risk from the free triazole T, triazole alanine TA, and triazole acetic acid TAA from all currently registered uses of triazole-producing pesticides are not of concern.

HED has evaluated the status of the human health risk assessment for myclobutanil to determine whether sufficient data are available and whether any updates are needed to support registration review. HED has considered the most recent human health risk assessments for myclobutanil, toxicology, and exposure including archived and usage databases, in accordance with the latest Agency science policy and risk assessment methodologies. The myclobutanil toxicology, residue chemistry, and residential and occupational exposure database are adequate to support the registration review.

Hazard Identification/Toxicology

The toxicology database for myclobutanil is sufficient for assessing risk. Although the current 40 CFR Part 158 Toxicology Data Requirements include subchronic inhalation, immunotoxicity, and neurotoxicity (acute and subchronic) studies, these studies were not submitted for myclobutanil. However, based on a weight-of-evidence (WOE) approach, the Hazard and Science Policy Council (HASPOC) determined that subchronic inhalation, immunotoxicity, and neurotoxicity (acute and subchronic) studies are not required to support the registered uses of myclobutanil (TXR#0056515, 11/08/2012 and TXR#0056730, 08/13/2013). The TOXLINE (National Library of Medicine) database literature search did not identify any new toxicological information not already considered.

The toxicity profile for myclobutanil is presented in Attachment Tables A2.1 and A2.2. Myclobutanil exhibits low acute toxicity via the oral, dermal and inhalation routes of exposure (toxicity category III, IV, and IV, respectively). In primary irritation studies, myclobutanil was non-irritating to skin (toxicity Category IV) but produced severe ocular irritation (Toxicity Category I). Dermal sensitization studies indicate that myclobutanil is a skin sensitizer.

Myclobutanil is rapidly absorbed and excreted with complete elimination by 96 hours. There is extensive metabolism prior to excretion with elimination of radiolabeled material evenly distributed between urine and feces. There is no evidence of tissue accumulation.

In subchronic and chronic toxicity studies, the primary target organs for myclobutanil are the liver in rats, mice and dogs, and the testis in rats. Liver effects following subchronic exposure to myclobutanil in rats include hypertrophy, hepatocellular necrosis, and increased liver weights; testis effects are decreased testicular weights, and testicular atrophy. Chronic exposure to rats resulted in additional liver effects (*i.e.*, hepatocellular vacuolization, and adverse effects on

mixed function oxidase (MFO) activity), and additional testicular effects (*i.e.*, bilateral aspermatogenesis, increased hypospermia, and cellular debris in the epididymides, and increased arteritis/periarteritis in the testes) indicating a progression of toxicity over time. In the mouse, myclobutanil exposure leads to a similar liver toxicity profile, with additional effects including increased Kupffer cell pigmentation; periportal punctate vacuolization; and individual liver cell necrosis. Signs of toxicity observed in the 28-day rat dermal studies with two formulations of myclobutanil (40WP and 2EC) were confined to dermal irritation; no systemic effects were recorded.

There was no evidence of increased susceptibility in either the rat or rabbit developmental studies or in the rat two-generation reproduction study. In the rat developmental study, maternal toxicity, which included rough hair coat and salivation, occurred at the same dose (312.6 mg/kg/day) as increases in the incidence of 14th rudimentary and 7th cervical ribs in the fetuses. In the rabbit developmental study, reduced body weight and body weight gain along with clinical signs and possibly abortions in the dams was evident at the same dose showing increased resorptions, decreased litter sizes and decreased viability in the pups. Parental toxicity in the rat reproduction study included increased liver weights and hepatocellular hypertrophy. Reproductive effects (*i.e.*, increased stillborn pups and testicular atrophy) and developmental effects (*i.e.*, decreased pup body weight gain during lactation) in the rat reproduction study were noted at the same dose as the parental effects.

There is no evidence of carcinogenicity in either rats or mice. The Cancer Assessment Review Committee classifies myclobutanil as a “Group E” (non-carcinogen) chemical. In dogs, toxicity in the subchronic study is manifested as hepatocellular hypertrophy, increased absolute and relative liver weights, and increased alkaline phosphatase. Liver toxicity (*i.e.*, increased liver weights, “ballooned” hepatocytes, and increased levels of SGPT and SGGT) is also noted after chronic exposure in dogs.

The Food Quality and Protection Act safety factor (FQPA SF) can be reduced to 1X. A 1X FQPA SF is appropriate because the toxicology database is complete; a developmental neurotoxicity study is not required for this chemical. There is no evidence of increased quantitative or qualitative susceptibility of the young following *in utero*, pre- or post-natal exposure to myclobutanil, and there is no residual uncertainty in the exposure database. The PoDs selected for various exposure scenarios are listed in Attachment Table A3.1.

Conclusions for Hazard Identification/Toxicology

The toxicology database for myclobutanil is adequate to support the registration review. As part of registration review, the endpoints, doses, and uncertainty/safety factors used in the most recent risk assessment will be re-evaluated according to current HED policy.

Residue and Dietary Exposure

The residue chemistry database is adequate to support the currently registered agricultural uses of myclobutanil. Adequate metabolism (crops, livestock, and rotational crops), storage stability, field trial, and processing data are available to support the registered uses. Adequate analytical methods are available for enforcement of the currently established tolerances.

The acute and chronic dietary risk assessments (food and water) were most recently performed for myclobutanil using the Dietary Exposure Evaluation Model (DEEM-FCID) version 2.03 (D341690, 10/02/2007). Drinking water concentrations for surface water (PRZM-EXAMS model), based on the highest use rate, tropical fruit were directly incorporated into the assessment. An acute dietary exposure assessment was performed for females 13-49 years old only using tolerance-level residues and 100% crop treated (CT) for all commodities. The acute dietary exposure estimates (95th percentile) are <100% (not of concern) for females 13-49 years old at 4% of the acute Population Adjusted Dose (PAD). The chronic dietary analysis is a somewhat refined assessment. Pesticide Data Program (PDP) data, used for (apple juice, bananas, and milk); tolerances for all other commodities, %CT information when available and 100% CT for all other commodities. The chronic dietary exposure risk estimates are <100% (not of concern) for all populations at 20% of the chronic Population Adjusted Dose (cPAD). The most highly exposed population subgroup is children 1-2 years old at 30% of the cPAD.

EFED has indicated that an updated drinking water risk assessment is required for myclobutanil (personal communication: M. Biscoe 12/03/2014).

Conclusions for Residue and Dietary Exposure

The residue chemistry database is considered complete. An updated dietary (food and drinking water) risk assessment may need to be conducted during registration review if the toxicological PoDs or UF/SFs change, and/or the updated drinking water assessment results in estimated drinking water concentrations which vary significantly from the values used in the current assessment.

Residential (Non-Occupational) Exposure

Myclobutanil is used on a variety of residential sites such as turf, pick your own farms, home gardens, ornamentals, and golf courses. There is the potential for residential exposure from the registered uses of myclobutanil. In addition there also is the potential for post-application exposure for individuals exposed as a result of being in an environment that has been previously treated with myclobutanil. The myclobutanil data set includes a turf transferable residue (TTR) study (MRID 44952901) first reviewed in 2006 (D319227, T. Dole, 02/08/2006). The existing residential handler and post application exposures were assessed using the most up-to-date exposure policies, SOPs, and chemical specific data available in the 2013 assessment (D408781, B. Bobowiec, 01/08/2013). A combined dermal and inhalation short-term (ST) duration (1-30 days) quantitative handler identified no risk estimates of concern for residential handlers. The 2013 ST dermal post-application risk assessment found no dermal and hand to mouth (HtM) risk estimates of concern for adults and children (appropriate age groups) for home gardens, mowing turf, golf courses, and pick-your-own scenarios. However, there were dermal post application risk estimates identified as a concern for both adults and children ages 1<2 years of age from high contact physical activities on turf.

Conclusions for Residential Exposure and Risk Assessment

The residential exposure database is considered complete. Updated residential risk assessments will be required if significant changes are made to the PoDs and UFs used in the current risk assessment.

Aggregate Risk

Based on the 2007 risk assessment, acute dietary (food and water) risk estimates were not of concern (<100%) at the 95th exposure percentile for females 13-49 years old. The chronic dietary risk estimates are below HED's level of concern (<100% cPAD) for the general U.S. population (20% of the cPAD) and all population subgroups. The most highly exposed population subgroup is children 1-2 years old at 30% of the cPAD. The short-term and intermediate aggregate risk assessment (Food, Drinking Water and Residential): were not of concern in 2007 (MOEs > 100); however this assessment did not include information from the updated 2013 residential assessment.

Conclusions for Aggregate Risk Assessment

An updated acute and chronic aggregate risk assessment may need to be conducted during registration review if the toxicological PoDs or UF/SFs change, and/or the updated drinking water assessment results in estimated drinking water concentrations which vary significantly from the values used in the current assessment. Additionally, new short- and intermediate-term aggregate risk assessments will be required which consider the most updated residential assessment, incorporate all updated PoDs and UFs, and comply with current policy.

Occupational Exposure

Occupational handlers are anticipated to have short- and intermediate-term dermal and inhalation exposures. There were no risk estimates of concern identified for occupational handlers in the previous 2007 and 2013 assessments. However, these occupational assessments assessed the water soluble packaged (WSP) formulations of myclobutanil only. In support of Registration Review, an updated occupational exposure assessment for myclobutanil will be conducted for all of the formulations types and possible exposure scenarios. New risk estimates will reflect updates to HED's SOPs along with policy changes for body weight assumptions, available chemical specific data, and any changes to PoDs or UF/SFs.

There are multiple potential sources of myclobutanil exposure to individuals performing post-application activities in previously treated fields. The myclobutanil data set includes two dislodgeable foliar residue (DFR) studies (MRID 40489302 and study "Dislodgeable Foliar Residues Following Reduced-Volume and Conventional Myclobutanil Application to Grapes," August 200; Welsh et.) in California on grape using an airblast equipment. Occupational post application dermal assessments from 2007 and 2013 identified no dermal risk estimates of concern using the most updated SOPs and chemical specific data. Myclobutanil products include reentry intervals (REIs) of both 24 and 48 hours. In the 2007 risk assessment (D341689, W. Cutchin and M. Dow, 11/01/2007) the recommendation was made for PRD to ensure that appropriate REI language be confirmed or corrected as necessary according to Title 40 of the code of Federal Regulations.

There are multiple potential sources of post application inhalation exposure to individuals performing post application activities in previously treated fields. These potential sources include volatilization of pesticides and re-suspension of dusts and/or particulates that contain pesticides. The Agency sought expert advice and input on issues related to volatilization of pesticides from its Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel

(SAP) in December 2009, and received the SAP's final report on March 2, 2010 (<http://www.epa.gov/scipoly/SAP/meetings/2009/120109meeting.html>). In terms of volatilization, the Agency has evaluated the SAP report and has developed a Volatilization Screening Tool and a subsequent Volatilization Screening Analysis (<http://www.regulations.gov/#!docketDetail;D=EPA-HQ-OPP-2014-0219>). During Registration Review, the Agency will utilize this analysis to determine if data (i.e., flux studies, route-specific inhalation toxicological studies) or further analysis is required for specific chemicals. If new policies or procedures are put into place, then the Agency may revisit the need for a quantitative occupational post-application inhalation exposure assessment for myclobutanil.

Conclusions for Occupational Exposure and Risk Assessment

The occupational exposure database is considered complete. Updated occupational risk assessments will be required if significant changes are made to the PoDs and UFs used in the current risk assessment.

Spray Drift and Volatility

A spray drift analysis has not been conducted for this chemical in previous assessments. In accordance with new polices potential residential post-application exposure from spray drift resulting from ground, aerial, and airblast applications must be assessed for non-granular formulated myclobutanil products.

Tolerance Assessment and International Harmonization

Tolerance Expression

The current tolerance expression under 40 CFR §180.443 does not comply with the HED *Interim Guidance on Tolerance Expressions* (S. Knizner, 05/27/2009). During registration review, HED will reevaluate the tolerance expression and recommend updated regulatory language in compliance with the 2009 guidance.

International Harmonization

U.S. permanent tolerances and Maximum Residue Limits are summarized in Attachment 5. The U.S. and Canadian residue definitions for crop, livestock, and milk commodities include different myclobutanil metabolites. The Codex residue definition includes parent only. For several of these raw agricultural commodities, the tolerance and MRLs for the U.S., Canada, and Codex are harmonized. However, there are a few commodities for which harmonization of the tolerance and MRLs is not likely. Harmonization of the tolerance and MRL levels is not likely since the U.S. use patterns require a higher tolerance or MRL. The exception, for example, is the (strawberry, stone fruit, and cucurbit vegetable crops) each having a lower tolerance or MRL. These discrepancies appear bolded in Tables A5.1 and A5.2 in Attachment 5. These international harmonization issues will be further considered during registration review.

International or Intergovernmental Work Sharing

HED is not currently involved in any joint international review projects that involve the active ingredient, Myclobutanil. Additionally, HED is unaware of any ongoing international assessments for Myclobutanil.

Cumulative

The Food Quality Protection Act (FQPA) requires the Agency to consider the cumulative risks of chemicals sharing a common mechanism of toxicity. Unlike other pesticides for which EPA has followed a cumulative risk approach based on a common mechanism of toxicity, EPA has not made a common mechanism of toxicity finding as to myclobutanil and any other substances, and myclobutanil does not appear to produce a toxic metabolite produced by other substances. Therefore, the cumulative risk assessment has not been performed.

Incident Data

Based on the low frequency, and low severity of incident cases reported for myclobutanil in both the IDS and SENSOR-Pesticides databases, there does not appear to be a concern at this time that would warrant further investigation. The Agency will continue to monitor the incident information, and if a concern is triggered, additional analysis will be included in the risk assessment (D421958, S. Recore, 10/23/2014).

Data Requirements

Toxicity Studies

- None

Residue Chemistry Studies

- None

Occupational/Residential Studies

- None

References

Memoranda Relevant to Registration Review for Myclobutanil			
Author	DP or TXR Barcode	Date	Title
B. Bobowiec	D408781	01/08/2013	Myclobutanil: Occupational Exposure Assessment for a Proposed Use on Grass Grown for Seed, and Sod Farms, and Residential Reassessment on Existing Uses
M. Clock-Rust,	D341235	10/30/2007	Myclobutanil: Cotton Seed Treatment; Increased Rate of Application and Addition of "On Farm" Cotton Seed Treatment Uses to Label
T. Dole	D319227	02/08/2006	Residential Risk Assessment for the Proposed New Use of Myclobutanil on Home Garden Fruit Trees, Nut Trees, Berries, Mint and Vegetables
W. Cutchin	D341689	11/01/2007	Myclobutanil. Human-Health Risk Assessment for Proposed Use on Section 3 Requests for Use on Snap Bean, Mint, Papaya, Gooseberry, Currant, Caneberry, Bell and Non-Bell Pepper, Head and Leaf Lettuce, and Artichoke.
T. Dole	D319227	02/08/2006	Review of "Determination of Dislodgeable Residues of Myclobutanil on Grape Foliage", MRID 404893-02; November 9, 1987; W.J. Zogorski, Performing Laboratory: Rohm and Haas Company.
T. Morton	D414951	10/24/2013	Common Triazole Metabolites: Updated Dietary (Food + Water) Exposure and Risk Assessment to Address The New Section 3 Registrations For Use of Propiconazole on Oilseeds Crop Subgroup 20A; Use of Difenconazole on Oilseeds Crop Subgroup 20A; and Use of Tebuconazole on Imported Oranges.
R. Loranger	PP#7G3479/ FAP # 7H5523	06/16/1987	Myclobutanil on Apples and Grapes – Evaluation on Analytical Method and Residue Data (Accession Numbers 266026 through 2660321)
S. Recore	D421958	10/23/2014	Myclobutanil: Tier I Review of Human Incidents

Attachments

- Attachment 1. Chemical Identity and Physicochemical Properties of Myclobutanil
- Attachment 2. Myclobutanil Toxicity Profile
- Attachment 3. Summary of Toxicological Doses and Endpoint for Myclobutanil for Use in Dietary and Non-Occupational Human Health Risk Assessments
- Attachment 4. Summary of Toxicology Data Requirements for Myclobutanil
- Attachment 5. Myclobutanil International Residue Limits
- Attachment 6. Preliminary Use Profile for Registered Myclobutanil Labels

Attachment 1. Chemical Identity and Physicochemical Properties of Myclobutanil

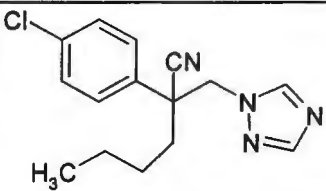
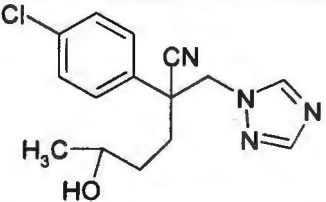
Table A1.1. Myclobutanil Nomenclature	
Chemical structure	
Common name	Myclobutanil
Company experimental name	RH-3866
IUPAC name	(<i>RS</i>)-2-(4-chlorophenyl)-2-(1 <i>H</i> -1,2,4-triazol-1-ylmethyl)hexanenitrile
CAS name	α -butyl- α -(4-chlorophenyl)-1 <i>H</i> -1,2,4-triazole-1-propanenitrile
CAS #	88671-89-0
End-use product/(EP)	See Use Profile attached, Table A6.1
Chemical structure of regulated metabolite	
Common name	Alcohol metabolite RH-9090

Table A1.2. Physicochemical Properties of Technical Grade Myclobutanil		
Parameter	Value	Reference Product Chemistry Review (C.L. Trichilo, 1988), and Rohm and Haas Report, "Revision to: RH-3866 Technical - Physical and Chemical Characteristics"
Molecular Weight	288.8 g/mol.	
Melting range/range	63-68 °C	
Density	1.22 g/cc @ 23 °C and 1.19 g/cc @ 100 °C	
Water solubility (20 °C)	(25 °C) 142 ppm	
Solvent solubility (g/L at 20 °C)	xylene: >50 g/100g amyl acetate: >50 g/100g cyclohexanone: >50 g/100g DMF: >50 g/100g methyl ethyl ketone: >50 g/100g	
Vapor pressure	1.6 X 10 ⁻⁶ torr @ 25 °C for pure a.i.	
Dissociation constant, pK _a	The pure a.i. does not have acidic hydrogens and is expected to be a very weak base. Attempts to measure pK _a by titration with acid (HCl) and base (NaOH) failed to detect any inflection on the titration curve, indicating little or no dissociation.	MRID 489512-03
Octanol/water partition coefficient Log(K _{ow})	2.94 @ 25 °C for pure a.i.	
UV/visible absorption spectrum	UV/VIS absorption characteristics: Lambda max (nm) <ul style="list-style-type: none"> • Neutral Media: Max at 221 nm was 1.044 AU. • Acid Media: Max at 220 nm was 1.462 AU. • Basic Media at 221.4 nm was 1.018 AU. 	

Attachment 2. Myclobutanil Toxicity Profile

Table A2.1. Acute Toxicity Profile for Myclobutanil

Guideline No.	Study Type	MRID #(S)	Results	Toxicity Category
81-1	Acute Oral [rats]	00141662	LD ₅₀ = 1.6 g/kg (M) LD ₅₀ = 2.29 g/kg (F)	III
81-2	Acute Dermal [rabbits]	00141663	LD ₅₀ > 5000 mg/kg	IV
81-3	Acute Inhalation [rats]	40357101	LC ₅₀ > 5.1 mL	IV
81-4	Primary Eye Irritation [rabbits]	00141663	Severe eye irritant	I
81-5	Primary Dermal Irritation [rabbits]	00141663	Non-irritating to skin	IV
81-6	Dermal Sensitization [guinea pigs]	40357102	Positive sensitizer	

Table A2.2 Subchronic, Chronic and Other Toxicity Profile for Myclobutanil

Guideline No./Study Type	MRID No. (year)/ Classification/Doses:	Results
870.3100 90-Day Oral [SD rats]	00145048 (1984) Acceptable/guideline 0, 5, 15, 50, 150, 500, 1500, 5000 or 10,000 ppm (2 weeks); 0, 7, 21, 70, 210, 700, 2100, 7000, or 21, 000 ppm (weeks 3 and 4); and 0, 10, 30, 100, 300, 1000, 3000, 10,000 or 30,000 ppm (for the remainder of the 13 weeks)	NOAEL = 1000 ppm LOAEL = 3000 ppm: increased liver and kidney weights; hypertrophy and necrosis of the liver; pigmentation in the convoluted kidney tubules; and vacuolated adrenal cortex.
870.3100 90-Day Oral [ICR mice]	00165245 (1986) Acceptable/guideline 0, 3, 10, 30, 100, 300, 1000, 3000, or 10,000 ppm 0, 0.45, 1.5, 4.5, 15, 45, 150, 450 or 1500 mg/kg/day (M & F)	NOAEL = 300 ppm (45 mg/kg/day) LOAEL = 1000 ppm (150 mg/kg/day): hepatocytic hypertrophy, swollen-vacuolated centrilobular hepatocytes, centrilobular individual cell necrosis and centrilobular necrotic hepatitis; cytoplasmic eosinophilia and/or hypertrophy of the zona fasciculata cells of the adrenal glands of the males.
870.3150 90-Day Oral [Beagle dogs]	00141670 (1984) Acceptable/guideline 0, 10, 200, 800, or 1600 ppm 0, 0.34, 7.26, 29.13, or 56.80 mg/kg/day (M) 0, 0.42, 7.88, 32.43, or 57.97 mg/kg/day (F)	NOAEL = 200 ppm (7.26 mg/kg/day) LOAEL = 800 ppm (29.13 mg/kg/day): liver changes including increased alkaline phosphatase, increased relative and absolute liver weight and hepatocellular hypertrophy.
870.3200 28-Day Dermal [rats]	00165246 (1986) Acceptable/guideline Study conducted on 2 formulations: 0, 1, 10, 100 mg a.i./kg/day 40 WP (41.36%, lot no. EG-0809-1) 0, 1, 10, 100 mg a.i./kg/day 2EC (24.99%, lot no. EG-0807-1)	<u>Systemic:</u> NOAEL > 100 mg a.i./kg/day. No systemic effects at highest dose tested for both formulations. <u>Local:</u> NOAEL = 10 mg a.i./kg/day LOAEL = 100 mg a.i./kg/day: skin irritation (considered reversible).
870.3465 90-day inhalation [rodents]	Data requirement waived by HASPOC; TXR#0056515	
870.4100 Chronic Oral	00149538/00165248 (1986) Acceptable/guideline	NOAEL = 100 ppm (3.09/3.83 mg/kg/day (M/F))

Table A2.2 Subchronic, Chronic and Other Toxicity Profile for Myclobutanil		
Guideline No./Study Type	MRID No. (year)/ Classification/Doses:	Results
(1 year) [Beagle dogs]	0, 10, 100, 400 or 1600 ppm 0, 0.34, 3.09, 14.28, or 54.22 mg/kg/day (M) 0, 0.4, 3.83, 15.68 or 58.2 mg/kg/day (F)	LOAEL = 400 ppm (14.28/15.68 mg/kg/day (M/F): hepatocellular hypertrophy (M/F), increased relative and absolute liver weights (M/F), "ballooned" hepatocytes, increased alkaline phosphatase, SGPT, GGT, and possible slight hematological effects.
870.4300 Chronic/ Carcinogenicity feeding (2 years) [ICR mice]	00164990/40244301 (1986) Acceptable/guideline (Chronic) Acceptable (Carcinogenicity) 0, 20, 100, or 500 ppm 0, 2.7, 13.7, or 70.2 mg/kg/day (M) 0, 3.2, 16.5, or 85.2 mg/kg/day (F)	Chronic: NOAEL = 100 ppm (16.5 mg/kg/day F) LOAEL = 500 ppm (70.2/85.2 mg/kg/day M/F: increases in MFO (M&F); increased SGPT (F); increased relative and absolute liver weights (M&F); increased centrilobular hepatocellular hypertrophy, Kupffer cell pigmentation, periportal punctate vacuolation and individual hepatocellular necrosis (M); and focal hepatocellular alterations and multifocal hepatocellular vacuolation (M&F). Carcinogenesis: Acceptable when used in conjunction with new carcinogenicity study in mice (MRID 42809102)
870.4300 Carcinogenicity feeding (18 months) [ICR mice]	42809102 (1993) Acceptable (Carcinogenicity) 0, or 2000 ppm 0, 393.5 mg/kg/day (F)	Carcinogenesis: Not carcinogenic. Acceptable when used in conjunction with the previous carcinogenicity study in mice (MRID 00164990/40244301). The two studies together satisfy the guideline requirements for a carcinogenicity study in mice
870.4300 Chronic/ Carcinogenicity feeding (2 years) [SD rats]	00149582/00165247(1986) Acceptable/guideline (Chronic) Acceptable (Carcinogenicity) 0, 25, 100, or 400 ppm (2 weeks) 0, 35, 140, or 560 ppm (2 weeks) 0, 50, 200, or 800 ppm (weeks 5 to term.) Overall mean daily dose = 0, 2.49, 9.84, or 39.21 mg/kg/day (M) 0, 3.23, 12.86, or 52.34 mg/kg/day (F)	Chronic: NOAEL = 2.49 mg/kg/day LOAEL = 9.84 mg/kg/day: Decreased testes weights & increased testicular atrophy. Carcinogenesis: Acceptable when used in conjunction with new carcinogenicity study in rats (MRID 42809101)
870.4300 Chronic/ Carcinogenicity feeding (2 years) [SD rats]	42809101 (1993) Acceptable (Carcinogenicity) 0, or 2500 ppm 0, 125 mg/kg/day (M&F)	Carcinogenesis: Not carcinogenic. Acceptable when used in conjunction with the previous carcinogenicity study in rats (MRID 00149582/00165247). The two studies together satisfy the guideline requirements for a carcinogenicity study in mice
870.3700a Developmental toxicity Oral [SD rats]	00141672 (1984) Acceptable/guideline 0, 31.26, 93.77, 312.58 or 468.87 mg/kg/day; days 6 thru 15 of gestation	<u>Maternal toxicity:</u> NOAEL = 93.8 mg/kg/day LOAEL = 312.6 mg/kg/day: clinical signs (rough hair coat, salivation). <u>Developmental toxicity:</u> NOAEL = 93.8 mg/kg/day LOAEL = 312.6 mg/kg/day: S increased incidence of 14 th rudimentary ribs & 7 th cervical ribs.
870.3700b Developmental toxicity	00164971 (1984) Acceptable/guideline	<u>Maternal toxicity:</u> NOAEL = 60.0 mg/kg/day

Table A2.2 Subchronic, Chronic and Other Toxicity Profile for Myclobutanil

Guideline No./Study Type	MRID No. (year)/ Classification/Doses:	Results
Oral [New Zealand White rabbits]	0, 20.0, 60.0, or 200.0 mg/kg/day; days 7 thru 19 of gestation	LOAEL = 200.0 mg/kg/day: decreased body weight & body weight gain, clinical signs, possible abortions. <u>Developmental toxicity:</u> NOAEL = 60.0 mg/kg/day LOAEL = 200.0 mg/kg/day: increased resorptions, decreases in litter size and decreases in the viability index.
870.3800 Reproductive toxicity Oral [SD rats]	00143766/00149581 (1985) Acceptable/guideline 0, 50, 200 or 1000 ppm 0, 2.5, 10, or 50 mg/kg/day (by the standard conversion factor)	<u>Parental toxicity:</u> NOAEL = 50 ppm (2.5 mg/kg/day) LOAEL = 200 ppm (10 mg/kg/day): hepatocellular hypertrophy & S increase liver weights (absolute & relative, both sexes & both generations). <u>Reproductive toxicity:</u> NOAEL = 200 ppm (10 mg/kg/day) LOAEL = 1000 ppm (50 mg/kg/day): increased incidence of stillborns & atrophy of testes & prostate <u>Developmental toxicity:</u> NOAEL = 200 ppm (10 mg/kg/day) LOAEL = 1000 ppm (50 mg/kg/day): decreased pup weight gain during lactation.
870.5100 Bacterial reverse gene mutation test	00141673 (1984) Acceptable/guideline <i>Salmonella typhimurium</i> strains TA1535, TA1537, TA98, TA100 75 – 7500 µg/plate +/-S9	Not mutagenic in <i>S. typhimurium</i> up to cytotoxic concentrations (7500 µg/plate -S9; ≥2500 µg/plate +S9)
870.5300 <i>In vitro</i> mammalian cell gene mutation test [Chinese hamster ovary(CHO/HGP RT) cells]	00141674 (1984) Acceptable/guideline 25-100 µg/mL-S9; 120-175 µg/mL-S9	Negative up to cytotoxic concentration without S9 (100 µg/mL) and cytotoxic or insoluble with S9 (175 µg/mL)
870.5375 <i>In vitro</i> mammalian chromosome aberration test [CHO cells]	00164972 (1985) Acceptable/guideline 25-100 µg/mL-S9; 20-100 µg/mL +S9	Negative up to cytotoxic concentration (100 µg/mL+/-S9)
870.5385 Mammalian bone marrow chromosomal aberration test <i>in vivo</i> [CD-1 mice]	00141675 (1984) Acceptable/guideline 0, 650 mg/kg (single oral gavage or daily oral gavage doses for 5 consecutive days)	Negative up to the maximum tolerated dose (650 mg/kg/day).
870.5450 Dominant lethal assay [SD rats]	00164974 (1986) Acceptable 0, 735 mg/kg	Negative with clinical signs of toxicity at 735 mg/kg.
870.5550	00164973 (1986) Acceptable/guideline	Negative up to cytotoxic concentrations

Table A2.2 Subchronic, Chronic and Other Toxicity Profile for Myclobutanil		
Guideline No./Study Type	MRID No. (year)/ Classification/Doses:	Results
Unscheduled DNA synthesis in mammalian cells	Primary rat hepatocytes 0, 0.1, 0.5, 1.0, 5.0 & 10 µg/mL	(≥ 5.0 µg/mL)
870.6200a Acute neurotoxicity [rats]	Data requirement waived by HASPOC (TXR#0056515)	
870.6200b Subchronic (13 weeks) neurotoxicity screening battery [rats]	Data requirement waived by HASPOC (TXR#0056515)	
870.7485 General metabolism [SD rats]	00164976 (1986) Acceptable/guideline 1 or 100 mg/kg via iv or oral (1 dose of ¹⁴ C-myclobutanil) or 100 mg/kg ¹⁴ C-myclobutanil oral followed by 1000 ppm diet (non-radiolabeled for 14 days 1000 ppm (dietary) groups of 2-4 M or F; samples collected at 0.25, 0.5, 1, 6, 24, 48, 72, or 96 hrs.	Completely and rapidly absorbed, extensively metabolized, rapidly & completely excreted. Eliminated from plasma biphasic; eliminated dose evenly distributed between feces and urine. No tissue accumulation by 96 hours. Some quantitative differences between males & females. Pretreatment for 2 weeks with non-labeled material had little effect on disposition or metabolism.
870.7485 General metabolism [SD rats] Dermal penetration [rats]	00145682 (1984) Acceptable/guideline Single oral gavage doses of 2000 ppm ¹⁴ C-myclobutanil (4 M & 4F); sampling at 6 and 24 hours, daily until sac (4 or 7 days post dosing)	Extensively metabolized and excreted in urine and feces. 7 major metabolites isolated and identified. Recovery of radioactivity 97.2%; highest amount of radioactivity found in liver, kidneys, and large and small intestines. No bioaccumulation.
870.7485 General metabolism [ICR mice]	00164975 (1986) Acceptable/guideline Two groups treated with 10, 100, 1000 ppm (dietary) 3 M & 3F/group 14 days & then with single doses of 2, 20 & 200 mg/kg radiolabeled with 2.318 × 10 ⁶ , 4.506 × 10 ⁷ , & 4.229 × 10 ⁸ dpm/mL, respectively, with ¹⁴ C-myclobutanil. Samples taken at 15 and 30 min., 1 and 6 hrs. and at day1 (Group 1) or at 1, 2, 3, or 4 days (Group 2).	Rapidly absorbed and excreted. Completely eliminated by 96 hours. Extensively metabolized prior to excretion. Metabolic patterns similar for both sexes. Disposition and metabolism after pulse administration is linear over dose range.
870.7600 Dermal penetration [SD rats]	00165252 (1986) Unacceptable but used by HIARC for the dose response assessment.	HIARC determined that the study provided information indicating that absorption would be no greater than 50% (HIARC, 1999)
870.7800 Immunotoxicity	Data requirement waived by HASPOC (TXR#0056730)	

Attachment 3. Summary of Toxicological Doses and Endpoint for Myclobutanil for Use in Dietary and Non-Occupational Human Health Risk Assessments

Table A3.1 Summary of Toxicological Doses and Endpoint for Myclobutanil for Use in Dietary and Non-Occupational and Occupational Human Health Risk Assessments				
Exposure Scenario	PoD	Uncertainty/FQPA SFs	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Acute Dietary <u>females 13-50 years of age</u>	NOAEL = 60 mg/kg/day	UF _A = 10x UF _H = 10x FQPA SF = 1x	Acute RfD = 0.60 mg/kg/day FQPA SF = 1x aPAD = 0.60 mg/kg/day	Developmental toxicity study in rabbits MIRD 00164971 LOAEL = 200 mg/kg/day based on increased resorptions, decreased litter size and a decrease in the viability index.
Acute Dietary <u>general population</u> including infants and children	not applicable			
Chronic Dietary <u>all populations</u>	NOAEL = 2.49 mg/kg/day	UF _A = 10x UF _H = 10x FQPA SF = 1x	Chronic RfD = 0.025 mg/kg/day cPAD = 0.025 mg/kg/day	Chronic/carcinogenicity feeding study in rats MIRD 00149582/00165247 LOAEL = 9.84 mg/kg/day based on decreased testicular weights and increased testicular atrophy.
Incidental oral Short-term and intermediate-term	NOAEL = 10 mg/kg/day	UF _A = 10x UF _H = 10x FQPA SF = 1x	LOC for MOE = 100	Reproductive toxicity study in rats MIRD 00143766/00149581 LOAEL = 50 mg/kg/day based on atrophy of the testes and prostate (in parental animals) as well as an increase in the number of stillborn pups and a decrease in pup weight gain during lactation.
Short-Term Dermal & Inhalation (1-30 days) (Occupational/Residential)	oral study NOAEL = 10 mg/kg/day (Dermal absorption rate = 50%) (Inhalation absorption rate = 100%)	UF _A = 10x UF _H = 10x FQPA SF = 1x	LOC for MOE = 100 (Occupational) LOC for MOE = 100 (Residential)	Reproductive toxicity study in rats MIRD 00143766/00149581 LOAEL = 50 mg/kg/day based on atrophy of the testes and prostate (in parental animals) as well as an increase in the number of stillborn pups and a decrease in pup weight gain during lactation.
Intermediate-Term Dermal & Inhalation (1-6 months) (Occupational)	oral study NOAEL = 10 mg/kg/day (Dermal absorption rate = 50%) (Inhalation absorption rate = 100%)	UF _A = 10x UF _H = 10x FQPA SF = 1x	LOC for MOE = 100 (Occupational) LOC for MOE = 100 (Residential)	Reproductive toxicity study in rats MIRD 00143766/00149581 LOAEL = 50 mg/kg/day based on atrophy of the testes and prostate (in parental animals) as well as an increase in the number of stillborn pups and a decrease in pup weight gain during lactation.
Long-Term Dermal & Inhalation (> 6 months) (Occupational)	oral study NOAEL = 2.49 mg/kg/day (Dermal absorption rate = 50%) (Inhalation absorption rate = 100%)	UF _A = 10x UF _H = 10x FQPA SF = 1x	LOC for MOE = 100 (Occupational) LOC for MOE = 100 (Residential)	Chronic/carcinogenicity feeding study in rats MIRD 00149582/00165247 LOAEL = 9.84 mg/kg/day based on decreased testicular weights and increased testicular atrophy.
Cancer (oral, dermal, inhalation)	"Group E"	not applicable		

Point of departure (PoD) = a data point or an estimated point that is derived from observed dose-response data and used to mark the beginning of extrapolation to determine risk associated with lower environmentally relevant human exposures. NOAEL = no observed adverse effect level. LOAEL = lowest observed adverse effect level. UF = uncertainty factor. FQPA SF = FQPA Safety Factor. PAD = population adjusted dose (a = acute, c = chronic). RfD = reference dose. LOC = level of concern.

Attachment 4. Summary of Toxicology Data Requirements for Myclobutanil

Table A4.1. Toxicology Data Requirements for Myclobutanil		
Test	Technical	
	Required	Conducted
870.1100 Acute Oral Toxicity	yes	yes
870.1200 Acute Dermal Toxicity	yes	yes
870.1300 Acute Inhalation Toxicity	yes	yes
870.2400 Primary Eye Irritation	yes	yes
870.2500 Primary Dermal Irritation	yes	yes
870.2600 Dermal Sensitization	yes	yes
870.3100 Oral Subchronic (rodent)	yes	yes
870.3150 Oral Subchronic (non-rodent)	yes	yes
870.3200 21/28-Day Dermal	yes	yes
870.3250 90-Day Dermal	no	no
870.3465 90-Day Inhalation	CR	waived ¹
870.3700a Developmental Toxicity (rodent)	yes	yes
870.3700b Developmental Toxicity (non-rodent)	yes	yes
870.3800 Reproduction	yes	yes
870.4100a Chronic Toxicity (rodent)	yes	yes
870.4100b Chronic Toxicity (non-rodent)	yes	yes
870.4200a Oncogenicity (rat)	yes	yes
870.4200b Oncogenicity (mouse)	yes	yes
870.4300 Chronic/Oncogenicity	yes	yes
870.5100 Mutagenicity—Gene Mutation (bacterial)	yes	yes
870.5300 Mutagenicity—Gene Mutation (mammalian)	yes	yes
870.5375 Mutagenicity—Structural Chromosomal Aberrations	yes	yes
870.5395 Mutagenicity—Other Genotoxic Effects	yes	yes
870.5500 Mutagenicity—Other Genotoxic Effects	yes	yes
870.6100a Acute Delayed Neurotoxicity (hen)	no	no
870.6100b 90-Day Neurotoxicity (hen)	no	no
870.6200a Acute Neurotoxicity Screening Battery (rat)	yes	waived ¹
870.6200b 90-Day Neurotoxicity Screening Battery (rat)	yes	waived ¹
870.6300 Developmental Neurotoxicity	no	no
870.7485 General Metabolism	yes	yes
870.7600 Dermal Penetration	CR	yes
870.7800 Immunotoxicity	yes	waived ¹

CR = conditionally required

¹ Data requirement waived by HASPOC for the 90-day inhalation, acute/subchronic neurotoxicity, and immunotoxicity studies (TXR#0056515 and TXR#0056730).

Attachment 5. Myclobutanil International Residue Limits

Table A5.1 Summary of US and International Tolerances and Maximum Residue Limits				
<i>Residue Definition:</i>				
US	Canada	Mexico ¹	Codex ²	
40 CFR 180.443: Plants: combined residues of the fungicide myclobutanil alpha-butyl-alpha-(4-chlorophenyl)-1 H -1,2,4-triazole-1-propanenitrile and its alcohol metabolite (alpha-(3-hydroxybutyl)-alpha-(4-chlorophenyl)-1 H -1,2,4-triazole-1-propanenitrile (free and bound)	Plants:α-butyl-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile, including the metabolites α- (3-hydroxybutyl)-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile and α-(butyl-3-one)-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile		Myclobutanil	
<i>Commodity</i>	<i>Tolerance (ppm) /Maximum Residue Limit (mg/kg)</i>			
	US	Canada	Mexico ¹	Codex ²
Almond	0.1	0.1		
Almond, hulls	2.0			
Apple	0.5	0.5		0.5 pome fruits
Apple, dry pomace	5.0			
Apple, wet pomace	5.0			
Artichoke, globe	0.90			
Asparagus	0.02	0.02		
Banana, postharvest	4.0	2.0 banana		2 banana
Bean, snap, succulent	1.0			
Caneberry subgroup 13A	2.0	2 blackberries, loganberries, raspberries, wild raspberries		
Canistel	3.0			
Cherry, sweet	5.0	1.0 cherries		
Cherry, tart	5.0	4.0 dried cherries		
Cilantro, leaves	9.0			
Cotton, undelinted seed	0.02			
Currant	3.0	3.0		0.5 currant black
Fruit, stone, except cherry	2.0	1.4 apricots 1.0 peaches, nectarines 7.0 dried peaches/nectarines 2.0 plums 8.0 fresh prune plums		2 stone fruits (except plums and prunes) 0.2 plums (except prunes) 0.5 prunes
Gooseberry	2.0	1.5		
Grain, aspirated fractions	35			
Grape	1.0	1.0		1
Grape, dried pomace	10.0			
Grape, raisin	10.0	10 raisins		
Grape, raisin, waste	25.0			
Grape, wet pomace	10.0			
Hop, dried cones	10			2 hops, dry
Leafy greens, subgroup 4A, except spinach	9.0			
Mango	3.0			
Mayhaw	0.70	0.5		0.5 pome fruits
Okra	4.0			
Papaya	3.0			
Peppermint, tops	3.0			

Table A5.1 Summary of US and International Tolerances and Maximum Residue Limits				
<i>Residue Definition:</i>				
US	Canada		Mexico ¹	Codex ²
Plum, prune, dried	8.0	8 fresh prune plums		0.2 plums (except prunes) 0.5 prunes
Sapodilla	3.0			
Sapote, black	3.0			
Sapote, mamey	3.0			
Soybean, forage	3.5			
Soybean, hay	15			
Soybean, refined oil	0.40			
Soybean, seed	0.25			
Spearmint, tops	3.0			
Star apple	3.0			
Strawberry	0.5	0.5		1
Tomato	0.3	0.3		0.3
Tomato, puree	0.5	0.5		
Tomato, paste	1.0	1.0		
Vegetable, cucurbit, group 9	0.2	0.3 balsam apples, balsam pears, bitter melons, cantaloupes, casaba melons, chayotes, Chinese cucumbers, Chinese waxgourds, citron melons, crenshaw melons, cucumbers, edible gourds (other than those listed in this item), golden pershaw melons, honey balls, honeydew melons, mango melons, Persian melons, pineapple melons, pumpkins, santa claus melons, snake melons, summer squash, watermelons, west Indian gherkins, winter squash		
Vegetable, fruiting, group 8, except tomato	4.0	1.0 peppers		
<i>MRLs with NO US Equivalent</i>				
Bushberry subgroup 13B		1.5 aronia berries, buffalo Chilean guavas, elderberries, European barberries, highbush blueberries, highbush cranberries honeysuckle, huckleberries, jostaberries, lingonberries, lowbush blueberries, native currants, salal berries, saskatoon berries (juneberries), sea buckthorn		
Pear		0.6		0.5 pome fruits
Completed: M. Negussie; 11/10/2014				

¹ Mexico adopts US tolerances and/or Codex MRLs for its export purposes.

² * = absent at the limit of quantitation; Po = postharvest treatment, such as treatment of stored grains. PoP = processed postharvest treated commodity, such as processing of treated stored wheat. (fat) = to be measured on the fat portion of the sample. MRLs indicated as proposed have not been finalized by the CCPR and the CAC.

Table A5.2 Summary of US and International Tolerances and Maximum Residue Limits for Myclobutanil				
US	Canada		Mexico ¹	Codex ²
Residue Definition				
40 CFR §180.443 Livestock: Myclobutanil [α -butyl- α -(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile] and its metabolite α -(3-hydroxybutyl)- α -(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile (free)	Livestock: α -butyl- α -(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile, including the metabolites α -(3-hydroxybutyl)- α -(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile, α -(butyl-3-one)- α -(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile and α -(4-chlorophenyl)- α -(2-formylethyl)-1H-1,2,4-triazole-1-propanenitrile			Myclobutanil
Commodity				
	Tolerance (ppm) /Maximum Residue Limit (mg/kg)			
	US	Canada	Mexico ¹	Codex ²
Cattle, fat	0.05	0.05		
Cattle, liver	1.0	0.3		0.01 (*) cattle, edible offal of
Cattle, meat	0.1	0.05		0.01 (*)
Cattle, meat byproducts, except liver	0.2	0.05 meat byproducts of cattle		0.01 (*) cattle, edible offal of
Egg	0.02	0.02		0.01 (*)
Goat, fat	0.05	0.05		
Goat, liver	1.0	0.3		
Goat, meat	0.1	0.05		
Goat, meat byproducts, except liver	0.2	0.05 meat byproducts of goats		
Hog, fat	0.05	0.05		
Hog, liver	1.0	0.3		
Hog, meat	0.1	0.05		
Hog, meat byproducts, except liver	0.2	0.05 meat byproducts of hogs		
Horse, fat	0.05	0.05		
Horse, liver	1.0	0.3		
Horse, meat	0.1	0.05		
Horse, meat byproducts, except liver	0.2	0.05 meat byproducts of horses		
Poultry, fat	0.02	0.02		
Poultry, meat	0.02	0.02		0.01 (*)
Poultry, meat byproducts	0.02	0.02		0.01 (*) poultry, edible offal of
Sheep, fat	0.05	0.05		
Sheep, liver	1.0	0.3		
Sheep, meat	0.1	0.05		
Sheep, meat byproducts, except liver	0.2	0.05 meat byproducts of sheep		

¹ Mexico adopts US tolerances and/or Codex MRLs for its export purposes.

² * = absent at the limit of quantitation; Po = postharvest treatment, such as treatment of stored grains. PoP = processed postharvest treated commodity, such as processing of treated stored wheat. (fat) = to be measured on the fat portion of the sample. MRLs indicated as proposed have not been finalized by the CCPR and the CAC.

Summary of US and International Tolerances and Maximum Residue Limits for Myclobutanil					
US		Canada		Mexico ¹	Codex ²
<i>Residue Definition</i>					
40 CFR §180.443 <i>Milk:</i> Myclobutanil [α-butyl-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile] and its metabolite α-(3-hydroxybutyl)-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile (free and bound)		Milk. Myclobutanil α-butyl-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile, including the metabolites α-(3-hydroxybutyl)-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile and α-(butyl-3-one)-α-(4-chlorophenyl)-1H-1,2,4-triazole-1-propanenitrile			Myclobutanil
<i>Commodity</i>		<i>Tolerance (ppm) /Maximum Residue Limit (mg/kg)</i>			
	US	Canada		Mexico ¹	Codex ²
Milk	0.2	0.05			0.01 (*) cattle milk

¹ Mexico adopts US tolerances and/or Codex MRLs for its export purposes.

² * = absent at the limit of quantitation; Po = postharvest treatment, such as treatment of stored grains. PoP = processed postharvest treated commodity, such as processing of treated stored wheat. (fat) = to be measured on the fat portion of the sample. MRLs indicated as proposed have not been finalized by the CCPR and the CAC.

d) Indirect or inadvertent residues. Tolerances are established for residues of the fungicide myclobutanil alpha-butyl-alpha-(4-chlorophenyl)-1 H -1,2,4-triazole-1-propanenitrile in or on the following food commodities:

Commodity	Parts per million
Animal feed, non-grass, group 18	0.03
Grain, cereal, forage, fodder and straw, group 16	0.03
Grain, cereal, group 15	0.03
Vegetable, brassica, leafy, group 5	0.03
Vegetable, foliage of legume, group 7	0.03
Vegetable, fruiting, group 8	0.03
Vegetable, leafy, except brassica, group 4	0.03
Vegetable, leaves of root and tuber, group 2	0.03
Vegetable, legume, group 6	0.03
Vegetable, root and tuber, group 1	0.03

Attachment 6. Preliminary Use Profile for Registered Myclobutanil Labels

Table A6.1. Preliminary Use Profile for Registered Myclobutanil

Table A6.1. Preliminary Use Profile for Registered Myclobutanil									
EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
Cotton Seed Treatment									
DYNASTY EXTREME 100-1284 Commercial use only no farmer applied	Cotton Seed	Liquid Concentrate	9.7%	0.05 lb ai/100 lb of seed	1	Seed Treatment No	48 hrs.	Apply as a water-based slurry using seed treatment application. Cotton may be planted immediately. Other crops wait 45 days. Allow seeds to dry before bagging. Not for use in on farm hopper boxes, slurry box.	Coveralls over long sleeved shirt, pants, shoes socks, gloves, protective eyewear, headgear for overhead exposures and apron for cleaning equipment, mixing, or loading. California this product must be applied through a closed system such as WECO-RED.
SysthaneM-40 62719-464 Commercial use only no farmer applied			0.89 lb ai/gallon						
NU-FLOW CT 2935-558			40%						
SPERA 240 FS FUNGICIDE 55146-103			22.37 %						
MYCLOBUTANIL 240 ST 42750-266			2 lb ai/gallon						
LAREDO EC 62719-412			0.062 lb ai/100 lb of cotton seed						
LAREDO EW 62719-493 And MYCLOBUTANIL 20EW AG 42750-165			25% 2 lb ai/gallon						
SPERA COAT SEED TREATMENT 55146-114			19.7% 1.67 lb ai/gallon						
NUFARM MYCLOBUTANIL 20EW 55146-105			13.53% 1.18 lb ai/gallon						
NOVA 40W FUNGICIDE IN WATER SOLUBLE		WSP	40 %	0.027 lb ai/100 cotton seed			24 hrs.	Commercial and On Farm treatment. Use approved colorant. Do not graze cotton plants grown from treated seed. Store away from food and feedstuffs. Do not apply by chemigation. Commercial and On Farm treatment.	

Table A6.1. Preliminary Use Profile for Registered Myclobutanil

EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
POUCHES 62719-411									
Non Seed Treatment Crops									
LAREDO EC 62719-412	Almonds	Liquid Concentrate	25% 2 lb ai/gallon	0.2 lb ai/A	0.6 lb ai/A	Ground, Aerial, Chemigation, and Hand held.	24 hrs.	90 day PHI	Coveralls over long sleeved shirt, pants, shoes socks, gloves, protective eyewear, headgear for overhead exposures and apron for cleaning equipment, mixing, or loading.
	Soybean			0.125 lb ai/A	0.25 lb ai/A			28 day PHI,	
	Apples			0.0025 lb ai/gallon	2 lb ai/A			7 to day	
	Stone fruit			0.0015 lb ai/gallon	1.1 lb ai/A			No PHI. Applications up to day of harvest.	
	Grapes			0.125 lb ai/A	0.6 lb ai/A			14 day PHI	
	Ornamentals			0.25 lb ai/A	0.6 lb ai/A			Do not use plant material for food or feed	
	Turf			1.36 lb ai/A	7.6 lb ai/A			NY county restrictions.	
VPG MYCLOBUTANIL CONCENTRATE 7401-505 Outdoor Residential Use	Turf	Liquid Concentrate	1 %	0.3 lb ai/A	16 times	Hose sprayer Pump sprayer, Trigger bottle, Hose-end sprayer, Hand Sprayer,	NA	NA	NA
	Vegetables			0.000625 lb ai/gallon	4 times			Apply within 180 days of harvest. Once per season. California apply within 30 days of harvest	
	Nuts			0.000234 ai/gallon	3 times			Do not apply within 90 days of harvest. Do not use treated plants grass, or clipping for food or feed	
	Fruits			0.000625 lb ai/gallon	4-5 times			Repeat applications every 7 to 10 days. Do not treat with two weeks harvest	
	Berries			0.000625 lb ai/gallon	6 times			Up to the day of harvest. Reapply every 14-21 days as disease persists.	
	Ornamental			0.000156 lb ai/gallon	3 times			Treat once every two weeks throughout season. Treat roses every 7 to 10 day.	
7401-505 VPG Myclobutanil Concentrate Outdoor Residential Use	Turf	RTU Liquid Concentrate	1 %	0.03 lb ai/A	16 times			Do not use treated plants, grass, or clippings for food or feed. NY state apply maximum 3 times.	
7401-505 VPG Myclobutanil Concentrate	Turf	RTU Liquid	1 %	0.6 lb ai/A	16 times			Do not use treated plants, grass, or clippings for food or feed. Shake well. NY max 3 times.	

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EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE	
Outdoor Residential Use	Vegetables	Concentrate		0.00125 lb ai/gallon	4-5			Do not apply to harvestable spears. Do not use in California after 30 pre-harvest.		
	Nuts			0.0005 lb ai/gallon	3 times			Do not apply within 90 days of harvest		
	Fruits			0.00125 lb ai/gallon	5			Treat every 2 weeks. 2 week PHI.		
	Berries			0.00125 lb ai/gallon	8 times			May be applied up to day of harvest. No PHI Reapply every 14 to 21 days.		
	Ornamental Shrubs			0.0003 lb ai. gallon	NA			Treat every 14 days as disease persists.		
CHEMSICO CONCENTRATE MP 9688-120 Outdoor Residential Use	Turf	Liquid Concentrate	0.78 %	1.14 lb ai/A	16 times		NA			Crown rot rate. 3 ½ fl. oz. /gallon of water to treat 65 sq. ft. Do not allow people or pets to contact treated plants until spray has dried.
	Ornamentals			0.00125 lb ai/gallon						
CHEMSICO RTU MP 9688-121 Outdoor Residential Use	Fruits	RTU liquid	0.012 %	0.00125 lb ai/gallon	5 times		NA			Do not allow adults, children, or pets to enter the treated area until sprays have dried. Treat every 2 weeks. 2 week PHI.
CHEMSICO AEROSOL MP 9688-122 Outdoor Residential Use	Ornamentals and Turf	Aerosol RTU	0.020 %	0.00012 lb ai./ 15 oz. can						
CHEMSICO AEROSOL M 9688-157 Outdoor Residential use	Ornamentals	Aerosol	0.012 %	0.00012 lb ai/can	Treat once every 2 weeks until disease not present		NA			Hold can at least 18 inches from foliage. For best results retreat 10-14 days throughout the season. For outdoor residential use only.
CHEMSICO FUNGICIDE M 9688-123 And FUNGICIDE M1 9688-124	Ornamentals, Fruits, Nuts, Grapes, Mint, Asparagus, Cucurbits,	Liquid Concentrate	1.55 %	0.003 lb ai/gallon 0.25 lb ai for ornamentals and pome fruit	4-8		NA			Reapply 10 -14 day intervals. Fruits, nuts, mint and grapes do not apply within 14 days of harvest. Asparagus do not apply within 30 days of harvest. Berries, snap beans, tomatoes, and

Table A6.1. Preliminary Use Profile for Registered Myclobutanil

EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
	Snap Bean, Tomato,							cucurbits may be applied up to day of harvest.	
	Turf			1.18 lb ai/A 0.62 lb ai/A Crown Rot	16 3 in NY counties		NA	Use 3.5 fl. oz. /half -gallon for 250 feet and 3.5 fl. / gallon for crown rot. Treat grass in spring at site of disease	
CHEMSICO RTU M 9688-158 Outdoor Residential Use	Turf	Liquid Concentrate	0.012 %	0.09 lb a.i./A 0.04 lb ai/A crown rot	16 3 for NY counties	Hand Sprayer, Trigger sprayer Pump-Up Sprayer Bottle sprayer, Hose end sprayer,	NA	Treat in spring. One gallon will treat 500 ft2 and for crown rot only 1,000 ft2. Treat every 2 weeks for best results. Do not use clippings for feed.	
	Ornamentals			0.0002 lb ai/bottle	Treat every 2 weeks until disease not present			Apply to point of run off. Treat roses every 7-10 days.	
	Fruit Trees/Grapes				4-6			Do not treat within 2 weeks of harvest.	
CHEMSICO FUNGICIDE CONCENTRATE M6 9688-160	Turf	Liquid Concentrate	6 %	0.3 lb ai/A	13 3 for NY counties			One 32 oz. bottle will treat up to 9,000 ft2 turf. Treat every 2 weeks.	
	Ornamentals			0.001 lb ai/A	Until disease not present			Apply spray to point of run off at a 10- 14 day interval.	
	Fruits Trees/Grape			0.002 lb ai/A	6-10				
CHEMSICO FUNGICIDE CONCENTRATE 3000 9688-165	Turf	Liquid Concentrate	2.0 %	0.61 lb ai/A	13 3 for NY counties		One 32 oz. bottle will treat 3,000 ft². Do not apply when temperatures are above 85 degrees F.		
MYCLOBUTANIL 40 WP AG 42750-141	Apples	Water Soluble Packet (WSP)	40 %	10 oz ai/A	1 lbs. ai/A	Ground, Aerial, Chemigation	24 hrs.	7 to 10 day interval. The amount of 40WP AG required per A varies with tree size and volume of fruit and foliage.	Long-sleeved shirt and long pants. Chemical-resistant gloves, shoes plus socks, and goggles, face shield, or safety glass.
	Almonds			0.05 lb ai/A	3 0.6 oz. ai/season			90 day PHI. For use in CA, Arizona, and Hawaii only. 90 day PHI.	
	Artichoke			0.1 lb ai/A	0.6 lb ai/A			3 day PHI.	
	Grapes			0.125 lb ai/A				14 day PHI	

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EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
	Hops			0.25 lb ai/A	1 lb ai/A			Do not apply with chemigation. 14 day PHI. Do not graze livestock in treated fields.	
	Mint				0.4 lb ai/A			30 day PHI	
	Berries			0.125 lb ai/A	1 lb ai/A			Applications can be made up to day of harvest	
	Asparagus			0.125 lb ai/A	0.5 lb ai/A			180 PHI. Do not apply to harvestable spears.	
	Cucurbits			0.125 lb ai/A	0.6 lb ai/A			No PHI	
	Lettuce			0.31 lb ai/A	4 times			3 day PHI	
	Okra			0.125 lb ai/A				No PHI	
	Peppers				0.5 lb ai/A				
	Snap Beans								
	Stone Fruit			0.15 lb ai/A	1.3 lb ai/A			Cherries can make additional applications post-harvest.	
	Pome Fruit			0.063 lb ai/A	2 lb ai/A			14 day PHI.	
	Tropical Fruits			0.25 lb ai/A	8 times 2 lb ai/A			No pre-harvest interval. Rotational crop restrictions	
	Douglas Fir (Nursery Use Only)				0.6 lb ai/A			2-3 week interval. Spray adjuvant can be added.	
MYCOBUTANIL 40W T&O 42750-143	Turf	Water Soluble Packet (WSP)	40 %	Non-residential 1.3 lb ai/A	36 oz/5000 ft ² per year	Ground, Handheld, Chemigation	24 hr.	14-28 day interval.	Long-sleeved shirt and long pants. Chemical-resistant gloves, shoes plus socks, and goggles, face shield, or safety glass.
				Residential 0.66 lb ai/A					
	Ornamentals in and out of greenhouses			0.25 lb ai/A	2 lb ai/A			Residential landscapes apply 6 ounces per 100 gallons of spray. For concentrate use 4 ounces <100 gallons of spray for 10-14 day interval. Chrysanthemum cutting may be treated by dip treatment.	
	Apples			0.23 lb ai/acre	2 lb ai/A			14 day PHI. 300 gallons per acre basis.	
	Stone Fruit			0.12 lb ai/A	1.1 lb ai/A			No PHI	
	Grapes			0.38 lb ai/A	0.6 lb ai/A			14 day PHI	
								90 day PHI	
MYCLOBUTANIL 20EW AG 42750-165	Almond	Liquid concentrate	19.7 % 1.67 lb ai/gallon	0.2 lb ai/A	0.6 lb ai/A			14 day PHI	
	Applies			0.06 lb ai/A	2 lb ai/A			180 day PHI except California	
	Asparagus			0.12 lb ai/A	0.5 lb ai/A				

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EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
	Stone fruit			0.15 lb ai/A	1.1 lb ai/A			0 day PHI	
	Grapes			0.13 lb ai/A	0.6 lb ai/A			14 day PHI	
	Soybeans			0.125 lb ai/A	0.25 lb ai/A			28 day PHI	
	Small Fruits			0.125 lb ai/A	1.0 lb ai/A			0 day PHI	
	Artichoke			0.1 lb ai/A	0.6 lb ai/A			3 day PHI	
	Hops			0.25 lb ai/A	1 lb ai/A			14 day PHI	
	Spearmint			0.6 lb ai/A				30 day PHI	
MYCLOBUTANIL 20EW T&O 42750-166	Turf	Liquid Concentrate	19.7% 1.67 lb ai/gallon	1.3 lb ai/A for non-residential	7.4 lb ai/A			Turf residential, commercial ground or lawns around office, 14-21 day interval	WPS workers Baseline plus gloves. Non WPS worker baseline dermal
				0.64 lb ai/A residential					
	Landscape, Greenhouse, and Nursery Ornamentals			0.1 lb ai/A	2 lb ai/A			10- 14 day interval. Not approved for New York counties	
	Chrysanthemum Dip treatment			0.01 lb ai/A foliar 0.001 lb ai/A dip	0.25 lb ai/A			Do not use treat plant material so food or feed.	
	Nursery Ornamentals			0.25 lb ai/A	2 lb ai/A				
	Apples			0.0007 lb ai/gallon	2 lb ai/A			PHI 14 days.	
	Stone fruit			0.0004 lb ai/gallon	1.1 lb ai/A			Applications can be made up to day of harvest.	
	Plum/Prune				1.3 lb a/A				
	Cherries								
	Nectarines								
	Peaches								
	Grapes			0.0012 lb ai /gallon	0.6 lb ai/A			PHI 14 days	
MYCLOBUTANIL 2% HOMEOWNER 42750-196	Turf	Liquid Concentrate RTU	2%	1.12 lb ai/A	13 times and 3 times in NY	Hose end Sprayer	24 hr	One 32 fl. oz. bottle treats 6000 ft ² . Every 2 weeks,	Long sleeved shirt, long pants, chemical-resistant gloves, and shoes plus socks.
	Ornamentals			0.16 lb ai/A				Treat roses 7 to 14 days.	
	Almond			0.07 lb ai/A	3 times			90 day PHI	
	Apple and Mayhaw			0.1 lb ai/A	10 times			14 day PHI	

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EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
	Apricot and Nectarine			0.07 lb ai/A	7			0 day PHI	
	Cherries				7				
	Peach				7				
	Plum and Prune			0.22 lb ai/A	6			0 day PHI	
	Strawberry				4-8 times				
	Berries				0.21 lb ai/A				
	Peppermint and Spearmint			4				180 day PHI	
	Asparagus			5				No PHI	
	Cucurbits			4				No PHI	
	Snap Beans			4				No PHI	
	Tomato			4				No PHI	
	NUFARM MYCLOBUTANIL 20EW 55146-105			Almonds	Liquid Concentrate			19.7 %	
Apples		0.13 lb ai/A	2 lb ai/A	14 day PHI					
Stone Fruit		0.03 lb ai/A	1.3 lb ai/A	0 day PHI					
Grapes		0.026 lb ai/ A	0.6 lb ai/A	14 day PHI					
Soybeans			0.25 lb ai/A	29 day PHI					
RALLY 60 DF FUNGICIDE 62719-408	Apples	Dry Flowable	40%	0.25 lb ai/A	2 lb ai/A	14 day PHI			
	Stone Fruit			0.24 lb ai/A	1.13 lb ai/A	0 day PHI			
	Grapes			0.20 lb ai/A	0.6 lb ai/A	14 day PHI			
	Non-Food Use			0.4 lb ai/A	0.6 lb ai/A	NA			
	RALLY 40WSP 62719-410			soybean	WSP	40 %	0.125 lb ai/A	0.6 lb ai/A	28 day PHI
almond		0.2 lb ai /A	0.6 lb ai/A	90 day PHI					
Apple		0.25 lb ai/A	2 lb ai/.A	14 day PHI					
Berries		0.125 lb ai/A	0.75 lb ai/A	No PHI					
Black sapote, mango, papaya		0.25 lb ai/A	2 lb ai/A	No PHI					
Grape		0.125 lb ai. /A	0.6 lb ai/A	14 day PHI					

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EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
NOVA 40W AGRICULTURAL FUNGICIDE IN WATER SOLUBLE POUCHES 62719-411	Peppers Eggplant			0.125 lb ai/A	0.5 lb ai/A		24 hrs.	No PHI. Minimum retreatment interval 10 -14 days. Not for use in Alaska, Arizona, California, Hawaii Idaho, Montana , Nevada, Oregon ,Utah , Washington, Wyoming.	Long sleeved shirt, long pants, chemical-resistant gloves, and shoes plus socks. Protective eyewear, headgear for overhead exposure
	Okra							No PHI	
	Stone Fruit			2.4 oz.ai/A	1.3 lb ai/A			No PHI. Rate based on dilute spray with 250 gallons per acre basis	
	Apples			1.0 oz ai /100gallon	2 lb ai/A			14 day PHI. Rate based on dilute spray with 400 gallon per acre basis.	
	Grapes			2 oz ai./A	0.6 lb ai/A				
	Non-food			4 oz ai./A				NA	
EAGLE 40WP 62719-417	Turfgrass	40 %		Non Residential 1.31 lb ai/A	7.8 lb ai/A	Ground, Handheld Chemigation	24 hrs.	NA	Long sleeved shirt, long pants, chemical-resistant gloves, and shoes plus socks.
				Residential 0.65 lb ai/A					
	Landscape ornamentals			0.25 lb ai/A	2 lb ai/A				
	Greenhouse and nursery ornamentals								
	apples			0.00075 lb ai/gallon	2 lb ai/A			14 day PHI	
	Stone fruits			0.0004 lb ai/gallon	1.3 lb ai/A			No PHI	
	Grapes			0.125 lb ai/A	0.6 lb ai/A			14 day PHI	
SYSTHANE WSP ORNAMENTAL FUNGICIDE 62719-432	Ornamentals	40 %		2.4 oz ai/A)	2 lb ai/A per year	Ground, handgun or pressurized sprayers, chemigation	24 hrs.	Not for use in Nassau or Suffolk counties NY. Includes foliar and pre-stick treatment for chrysanthemum. Do not use treated plant material for food or feed.	
	Almonds		0.50%	0.2 lb ai/A	0.6 lb ai/A	Ground, aerial handgun or		90 day PHI	Do not apply this product through any chemigation
	Apples			0.25 lb ai/A	2 lb ai/A			14 day PHI	

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EPA Reg. No	Crop	Formulation	% ai.	Maximum Application Rate	Maximum Number of Applications and Max rate	Application Equipment	REI	Use Directions and Limitations	PPE
RH-144228 FUNGICIDE 62719-435	Stone fruit	Liquid Concentrate		0.15 lb ai/A	1 lb ai/A	pressurized sprayers,		24 hrs. PHI	Long sleeved shirt, long pants, chemical-resistant gloves, and shoes plus socks. Headgear and protective eyewear
	Grape			0.1 lb ai/A	0.6 lb ai/A			14 day PHI	
EAGLE 20EW 62719-463	Turf	Liquid Concentrate	19.7 %	Non Residential 1.36 lb ai/A	7.8 lb ai/A	Ground, handgun or pressurized sprayers, chemigation		Commercial lawns, golf course NY restrictions.	
	Ornamentals And greenhouse			Residential 0.68 lb ai/A				NY restrictions	
	Apples			0.00078 lb ai/gallon	2 lb ai/A			14 day PHI	
	Stone Fruit			0.00039 lb ai/A	1.1 lb ai/a			Day of harvest	
	Grapes			0.13 lb ai/A	0.6 lb ai/A			14 day PHI	
LAREDO EW 62719-493	Soybean			0.125 lb ai/A	0.25 lb ai/A			Do not make application within 28 days of harvest. 14-21 day application interval.	
	Almonds			0.2 lb ai/A	0.6 lb ai/A			90 day PHI.	
	Apples			0.06 lb ai/A	2 lb ai/A			14 day PHI	
	Stone Fruits			0.15 lb ai/A	1.1 lb ai/A			Applications can be made up to day of harvest.	
	Grapes			0.125 lb ai/A	0.6 lb ai/A			14 day PHI.	
QUALI-PRO MYCLOBUTANIL 20EW T&O 66222-185	Non-residential turf grass		19.7 % 1.67 lb ai/gallon	1.36 lb ai/A	3	Ground, aerial, hand pressurized sprayer,	24 hrs.	Includes commercial lawns, golf course fairways, roughs, tee boxes, greens. Application 14-28 day interval.	
	Residential Turfgrass			0.68 lb ai/A	2			No more than 3 consecutive applications.	
	Greenhouse and Nursery Ornamentals			0.25 lb ai/A	2 lb ai/A			Do not use material for food or feed, 10-14 day interval applications	
	Apples			0.00078 lb ai/gallon	2 lb ai/A			14 day PHI	
	Stone Fruit			0.0004 lb ai/gallon	1.1- 1.3 lb ai/A			No PHI.	

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FLUOXASTROBIN MYCLOBUTANIL SC 66330-388 Not for homeowner use	Turf	Ornamentals	25.60 %	0.8 lb ai/A	3.53 lb ai/year	Ground, overhead sprinkler system, chemigation	24 hr.	14-28 retreatment intervals. Turf includes sod farms, golf course, lawns, and landscape around residential, parks, and athletic fields.	Dermal baseline with gloves
			2.41 lb ai/gallon	0.002 lb ai/gallon	1.7 lb a/A			Not for use in California. Apply foliar until runoff. Do not use as feed or food. 7-28 day retreatment interval	
SISKIN United Phosphorus INC. 70506-284 and Myclobutanil 20 EW Rainbow Tree care Scientific Advancements 74779-12 and Myclo. 20EW Select Prime Source, LLC 89442-15	Non Residential Turfgrass		19 % 1.67 lb ai/gallon	1.36 lb ai/A	7.8 lb ai/A	Ground, handgun or pressurized sprayers, chemigation	24 hrs.	Turf includes, residential commercial lawns, ornamental turf, grounds, or lawns about business and office complexes, and golf course fairways, roughs, tee boxes, and greens. .New York State restrictions.	WPS workers use PPE baseline dermal plus chemical resistant gloves. Non-WPS baseline dermal PPE
	Residential Turfgrass			0.68 lb ai/A				10 -14 day interval application. Not for use in Nassau and Suffolk counties NY. Includes pre-stick dip treatment for chrysanthemum.	
	Ornamentals			0.25 lb ai/A	2 lb ai/A			Apples 14 day PHI,	
	Greenhouse and Nursery Ornamentals			0.0008 lb ai/A	2 lb ai/A			No PHI includes apricots, cherries, nectarines, peaches, plums, prunes.	
	Apples			0.0004 lb ai/A	1.1-1.3 lb ai/			14 day PHI	
	Stone Fruit			0.00125 lb ai/A	0.6 lb ai/A				
	Grapes								
Granular									
ANDERSONS GOLF PRODUCTS GOLDEN EAGLE FUNGICIDE 9198-207	Turf	Granular	1.0 %	1.36 lb ai/A	7.8 lb ai/A	Ground Spreader	NA	Lightly irrigate after application. Not for turf being ground for sale as sod.	NO WPS box. PPE listed is long sleeved shirt, pants sock and shoes and waterproof gloves.
EAGLE 0.39G SPECIALTY FUNGICIDE 62719-461 And EAGLE 0.62G 62719-462			0.39 %	Non-residential 1.36 lb ai/A And Residential 0.68 lb ai/A	7.8 lb ai/A		48 hrs.	For professional and residential use for use in turfgrass, lawns, golf courses, and sod farms.	PPE includes long sleeved shirt, pants, and shoes plus socks.
			0.62 %				24 hrs.		

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DISARM M GRANULAR FUNGICIDE 66330-407			0.25 %	Non-residential 0.5 lb ai/A	0.5 lb ai/A		48 hrs.		
				Residential 0.4 lb ai/A	0.4 lb ai/A				
Technical									
MYCLOBUTANIL TECHNICAL 35935-99	98 % ai								
MYCLOBUTANIL TGAI 42750-142									
SYSTHANE 40 WP 62719-409	40 % ai								
RH-3866 TECHNICAL 62719-407	95.5 % ai								